CERTIFICATE OF MAILING

I hereby certify that the below listed items are being deposited with the U.S. Postal Service as first class mail in an envelope addressed to:

Mail Stop PCT (DO/EO/US)
Commissioner for Patents
Office of PCT Legal Administration
P.O. Box 1450
Alexandria, Virginia 22313-1450

on ___May 8, 2008___ .

Jo Bryan
Jo Bryan

In Re Application Of: Shim, et al.   Group No.: TBD

Serial No.: 10/550,525
International Application No.: PCT/US04/09570

Docket No. 050508-1370

International Filing Date: March 26, 2004

For: **CXCR4 Antagonists and Methods of Their Use**

The following is a list of documents enclosed:

Return Postcard
Renewed Petition To Withdraw The Holding Of
  Abandonment Under 37 CFR 1.181(A)
Appendix A
Appendix B
Appendix C
Amendment Requesting Entry of Substitute Sequence Listing
Statement Regarding Sequence Listing Complying With Standard
Sequence Listing
Replacement Disk

Further, the Commissioner is authorized to charge Deposit Account No. 20-0778 for any additional fees required. The Commissioner is requested to credit any excess fee paid to Deposit Account No. 20-0778.

In Re Application Of: Shim, et al.

Group No.: TBD

Serial No.: 10/550,525
International Application No.: PCT/US04/09570

Docket No. 050508-1370

International Filing Date: March 26, 2004

For: **CXCR4 Antagonists and Methods of Their Use**

RENEWED PETITION TO WITHDRAW THE HOLDING OF ABANDONMENT UNDER 37 CFR 1.181(A)

Mail Stop PCT (DO/EO/US)
Commissioner for Patents
Office of PCT Legal Administration
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Applicants hereby submit this Renewed Petition to Withdraw the Holding of Abandonment Under 37 CFR 1.181(A) for reconsideration on the merits in response to the Decision mailed on March 13, 2008 dismissing Applicants previous petition filed on March 2, 2007. Applicants respectfully submit that the holding of abandonment was issued in error and that new information has recently become known to Applicants which Applicants believe warrants further consideration and withdrawal of the holding of abandonment. Please consider the following statements and remarks.

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BACKGROUND

In this section, Applicants have included the dates and events presented in the "Background" section of the Decision mailed March 13, 2008 dismissing Applicants previous petition (hereinafter "Decision"). The chain of events are repeated herein with additional comments. Additional dates and events, which are significant to the present petition, have also been noted by Applicants.

September 22, 2005: Applicants filed papers to enter the national stage of PCT/US2004/009570, which were accompanied by, *inter alia*, a sequence listing.

October 6, 2005: The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors in the sequence listing and sent an error report. **Applicants never received a copy of this report.** Applicants, were in fact, never even aware of the existence of this report until it was noted on the Decision, which was mailed by the PTO on March 13, 2008. Applicants then obtained a copy of this error report from PAIR, which is attached hereto as **Appendix A**. This report indicates certain defects in the sequence which were unintentional and which were unknown to Applicants until obtaining the copy of the report from PAIR in March 2008.

May 11, 2006: the DO/EO/US mailed a Notification of Missing Requirements Under 35 U.S.C. 371 (Form PCT/DO/EO/905) indicating, *inter alia*, that a copy of the sequence listing in computer readable form was required. A two-month time period for response was set with extensions of time available. The Notification of Missing Requirements made no mention of the STIC error report noted above. The Notification of Missing Requirements (attached hereto as **Appendix B**) specifically stated the following with respect to the sequence listing:

> The paper or compact disc copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 CFR 1.821(e). Applicant must provide a substitute

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paper or compact disc copy of the "Sequence Listing" as well as an amendment specifically directing its entry into the application OR a substitute computer readable form (CRF) copy of the "Sequence Listing." These two items must be the same...

August 11, 2006: Applicants filed a response to the Notification of Missing Requirements which included a sequence listing with diskette and a statement regarding the sequence listing. Applicants verified that the CRF of the sequence listing was the same as the paper copy of the sequence listing, thereby complying with the instructions, noted above, in the Notification of Missing Requirements.

October 12, 2006: the STIC issued a second error report detecting errors in the sequence listing. This report was substantially identical to the report issued October 5, 2005. Again, this report was not made known to the Applicants, until receipt of the Decision mailed March 13, 2008.

November 20, 2006: a Notification of Defective Response (Form PCT/DO/EO/916) was mailed to Applicants indicating that additional claim fees of $25.00 and a new CRF sequence listing diskette was required. Applicants were given one month (Dec. 20, 2006) to respond or any time remaining in the Form PCT/DO/EO/905 with extensions, whichever was longer. Again, this Notification indicated that the problem with the sequence listing was that it was not the same as the CRF, using the same language quoted above. The Notification contained no indication of any additional errors in the sequence listing, nor was a copy of the error report of October 12, 2006 included with the mailing.

December 11, 2006: Applicants filed a response to the Notification of Defective Response, again including a new CRF copy of the sequence listing and a statement regarding the sequence listing verifying that it was the same as the paper copy of the sequence listing. The Decision issued March 13, 2008 indicates that Applicants failed to respond to the Notification of Defective

Response. Applicants hereby include, as **Appendix C**, a copy of the Response to the Notification of Defective Response and all documents filed therewith (including a signed statement by Sara Rogers (on page 2 of the response) that such documents were deposited with the United States Postal Service as Express Mail No. EV861590400US on December 11, 2006), a copy of express mail label EV861590400US, and a copy of the postcard with the PTO stamp indicating such response was received by the PTO.

February 26, 2007: A Notification of Abandonment was mailed for allegedly failing to respond to the Form PCT/DO/EO/905 mailed May 11, 2006. (Note: this date is listed on page 2 of the Decision as February 28, 2002, which Applicants presume to be an error).

March 2, 2007, Applicants filed a Response to Notice of Abandonment which was treated as a petition to withdraw the holding of abandonment under 37 CFR 1.181(A), in which applicants again filed a sequence listing, a CRF copy of the sequence listing, a verification statement regarding the sequence listing, and copies of the previously filed responses and proof of mailing.

March 13, 2008, the Office of PCT Legal Administration issued the Decision dismissing Applicants petition to withdraw the holding of abandonment, from which Applicants now seek reconsideration and a withdrawal of the holding of abandonment.

REMARKS

In light of the above events, Applicants respectfully submit that the holding of abandonment should be withdrawn for at least the following reasons.

First, Applicants timely submitted a response to the Notification of Defective Response on December 11, 2006, before the due date of December 20, 2006. Proof of this submission and of receipt by the PTO is included in Appendix C. Thus, contrary to the assertion in the Decision issued on March 13,

2008, **Applicants did not fail to respond** to the form PCT/DO/EO/916, which is listed as the primary reason for holding of abandonment by operation of law on December 20, 2006.

Second, each of Applicant's submissions of the sequence listing and CRF copy of the sequence listing was rejected by the STIC due to unintentional errors that were unknown to Applicants due to the fact that Applicants never received copies of the error reports generated by the STIC. As detailed in the timeline above, on three different occasions (8/11/06; 12/11/06; and 3/2/07) Applicants submitted a copy of the sequence listing and an identical CRF copy of the sequence listing, since the instructions contained in the Notifications indicated the problem with the sequence listing was that the paper copy and CRF copy were not the same. However, the two copies were, in fact, identical, as required. Instead, the apparent reason for the continued rejection of the sequence listing were errors contained in the sequence listing, which were detailed in the STIC error reports that **were never received by Applicants**. Applicants also note that the first page of each error report instructs that a copy of the report be sent to Applicants; however, it does not appear that a copy of any of the error reports was ever sent to Applicants. If the error report was, in fact, sent to Applicants, it was not received, proof of which is set forth below.

Applicants would have been more than happy to amend the sequence listing to correct the errors indicated in the STIC error report of October, 6, 2005 (or the subsequent report). However, until the receipt of the Decision mailed on March 13, 2008 (**more than two years later**), Applicants had no knowledge that such error report existed, and thus had no knowledge of the errors. Even after realizing the existence of the error reports, Applicants had to obtain a copy of the report from PAIR, as no copy of any of the two error reports was received.

At Thomas, Kayden, Horstemeyer & Risley, LLP, all incoming mail from the PTO is delivered directly to the docketing department of the firm. A file clerk scans every incoming item and saves the electronic version to the network. Then, a clerk retrieves each corresponding file from the file shelf and couples the incoming correspondence to the proper file and then delivers the file to the desk

of a docketing clerk, who dockets the received correspondence (and due dates for any required response). Thereafter, the file is directed to an associated attorney/assistant for reporting to the client and preparing any appropriate response.

In the present case, upon receiving the Decision mailed March 13, 2008 which indicated that a response to the Notification of Defective Response mailed November 20, 2006 was never filed by Applicants and which mentioned the STIC error repots dated October 6, 2005 and October 12, 2006, the undersigned located the file on the file shelf of the file room. A copy of the Response to the Notification of Defective Response filed by applicants on December 12, 2006 was in the file, along with a copy of the express mailing label and a copy of the returned postcard bearing the PTO stamp. These items are included in Appendix C as proof of receipt by the PTO of Applicant's response to the Notification of Defective Response. Also, no copies of the STIC error reports were in the file. Further, no electronic versions of the error reports was saved to the network, nor were any docket entries made (in the docket system for the office of the undersigned). These facts confirm that the error reports were, in fact, never received by the office of the undersigned.
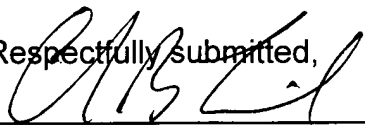
In response, Applicants hereby submit with this petition a substitute sequence listing, which corrects the errors identified in the STIC error report of October 6, 2005; an amendment directing entry of the sequence listing into the application; a CRF copy of the substitute sequence listing; and a statement regarding the sequence listing. Applicants respectfully request that the Office accept the substitute sequence listing, direct its entry into the specification, and withdraw the holding of abandonment, which occurred due to circumstances beyond Applicants' control.

In conclusion, Applicants respectfully submit that the above remarks, the attached proof of response on December 11, 2006 to the outstanding Notification of Defective Response of November 20, 2006, and the failure to receive the STIC error report provide sufficient evidence that the holding of abandonment was improper. Applicants hereby request that the Office accept the substitute

sequence listing correcting the errors detailed in the STIC error report, grant this petition, and withdraw the holding of abandonment.

If any other documents are needed by the Office in order to properly consider and/or grant this petition for withdrawal of abandonment, or if there are any outstanding questions regarding this matter, please contact the undersigned attorney.

It is not believed that any further fees are required. However, if the Office believes that any additional fees may be required, the Office is authorized to charge any deficiency to Deposit Account No. 20-0778.

Respectfully submitted,

_____
Christopher B. Linder, Reg. No. 47,751

THOMAS, KAYDEN,
  HORSTEMEYER & RISLEY, L.L.P.
Suite 1500
600 Galleria Parkway S.E.
Atlanta, Georgia 30339
(770) 933-9500

STIC Biotechnology Systems Branch

RAW SEQUENCE LISTING
ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: _10/550,525_

Source: _Pd/p_

Date Processed by STIC: _10/6/05_

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.
PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:
1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY
FOR CRF SUBMISSION AND PATENTIN SOFTWARE QUESTIONS, PLEASE CONTACT MARK SPENCER, TELEPHONE: 571-272-2510; FAX: 571-273-0221

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE **CHECKER VERSION 4.2.2 PROGRAM**, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:
http://www.uspto.gov/web/offices/pac/checker/chkrnote.htm

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.
Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.
Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (**<http://www.uspto.gov/ebc/efs/downloads/documents.htm>** , **EFS Submission User Manual - ePAVE)**
2. **U.S. Postal Service:** Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
3. **Hand Carry, Federal Express, United Parcel Service, or other delivery service (EFFECTIVE 01/14/05):** U.S. Patent and Trademark Office, Mail Stop Sequence, Customer Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314

Revised 01/24/05

Raw Sequence Listing Error Summary

ERROR DETECTED	SUGGESTED CORRECTION	SERIAL NUMBER: _10/550,525_

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

1 ____ Wrapped Nucleics
Wrapped Aminos
The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3: this will prevent "wrapping."

2 ____ Invalid Line Length   The rules require that a line not exceed 72 characters in length. This includes white spaces.

3 ____ Misaligned Amino
Numbering
The numbering under each 5th amino acid is misaligned. Do not use tab codes between numbers: use space characters, instead.

4 ____ Non-ASCII   The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text.

5 · ____ Variable Length   Sequence(s) ____ contain n's or Xaa's representing more than one residue. **Per Sequence Rules, each n or Xaa can only represent a single residue.** Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing.

6 ____ PatentIn 2.0
"bug"
A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s) _____. Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. **This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences.**

7 ____ Skipped Sequences
(OLD RULES)
Sequence(s) ____ missing. If intentional, please insert the following lines for each skipped sequence:
(2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
(i)   SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading)
(xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
This sequence is intentionally skipped

Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences.

8 ____ Skipped Sequences
(NEW RULES)
Sequence(s) ____ missing. If intentional, please insert the following lines for each skipped sequence.
<210> sequence id number
<400> sequence id number
000

9 ____ Use of n's or Xaa's
(NEW RULES)
Use of n's and/or Xaa's have been detected in the Sequence Listing.
Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present.
In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.

10 ____ Invalid <213>
Response
Per 1.823 of Sequence Rules, the only valid <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220>-<223> section is required when <213> response is Unknown or is Artificial Sequence

11 ____ Use of <220>   Sequence(s) _____ missing the <220> "Feature" and associated numeric identifiers and responses. Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section.
(See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules)

12 ____ PatentIn 2.0
"bug"
Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk.

13 ____ Misuse of n/Xaa   "n" can only represent a single <u>nucleotide</u>; "Xaa" can only represent a single <u>amino acid</u>

AMC – Biotechnology Systems Branch – 09/09/2003

PCT

RAW SEQUENCE LISTING   DATE: 10/06/2005
PATENT APPLICATION: US/10/550,525   TIME: 11:42:43

Input Set : A:\050508-1370.txt
Output Set: N:\CRF4\10062005\J550525.raw

```
    3 <110> APPLICANT: Shim, Hyunsuk
    4         Liang, Zhongxing
    5         Goodman, Mark
    6         Taichman, Russel
    7       · Umbreh, Jay
    9 <120> TITLE OF INVENTION: CXCR4 Antagonists and Methods of Their Use
   11 <130> FILE REFERENCE: 50508-2330 (Emory Ref. No. 02070)
C-->13 <140> CURRENT APPLICATION NUMBER: US/10/550,525
C-->13 <141> CURRENT FILING DATE: 2005-09-22
   13 <150> PRIOR APPLICATION NUMBER: 60/458,217
   14 <151> PRIOR FILING DATE: 2003-03-27
   16 <160> NUMBER OF SEQ ID NOS: 20
   18 <170> SOFTWARE: PatentIn version 3.2
   20 <210> SEQ ID NO: 1
   21 <211> LENGTH: 14
   22 <212> TYPE: PRT
   23 <213> ORGANISM: Artificial
   25 <220> FEATURE:
   26 <223> OTHER INFORMATION: sequence of T140
   29 <220> FEATURE:
   30 <221> NAME/KEY: MISC_FEATURE
   31 <222> LOCATION: (3)..(3)
   32 <223> OTHER INFORMATION: X = Nal
   34 <220> FEATURE:
   35 <221> NAME/KEY: MISC_FEATURE
   36 <222> LOCATION: (8)..(8)
   37 <223> OTHER INFORMATION: X = dLys
   39 <220> FEATURE:
   40 <221> NAME/KEY: MISC_FEATURE
   41 <222> LOCATION: (12)..(12)
   42 <223> OTHER INFORMATION: X = Cit
   44 <400> SEQUENCE: 1
W-->46 Arg Arg Xaa Cys Tyr Arg Lys Xaa Pro Tyr Arg Xaa Cys Arg
   47 1               5                   10
   50 <210> SEQ ID NO: 2
   51 <211> LENGTH: 14
   52 <212> TYPE: PRT
   53 <213> ORGANISM: Artificial
   55 <220> FEATURE:
   56 <223> OTHER INFORMATION: sequence of TN14003
   59 <220> FEATURE:
   60 <221> NAME/KEY: MISC_FEATURE
   61 <222> LOCATION: (3)..(3)
```

[handwritten annotations: "pp 1-5", "Does Not Comply Corrected Diskette Needed", "give source of genetic material (see item 11 on Error Summary Sheet)", "from what is this derived?"]

RAW SEQUENCE LISTING   DATE: 10/06/2005
PATENT APPLICATION: US/10/550,525   TIME: 11:42:43

Input Set : A:\050508-1370.txt
Output Set: N:\CRF4\10062005\J550525.raw

```
 62 <223> OTHER INFORMATION: X = Nal
 64 <220> FEATURE:
 65 <221> NAME/KEY: MISC_FEATURE
 66 <222> LOCATION: (6)..(6)
 67 <223> OTHER INFORMATION: X = Cit
 69 <220> FEATURE:
 70 <221> NAME/KEY: MISC_FEATURE
 71 <222> LOCATION: (8)..(8)
 72 <223> OTHER INFORMATION: X = dLys
 74 <220> FEATURE:
 75 <221> NAME/KEY: MISC_FEATURE
 76 <222> LOCATION: (12)..(12)
 77 <223> OTHER INFORMATION: X = Cit
 79 <400> SEQUENCE: 2
```

W--> `81 Arg Arg Xaa Cys Tyr Xaa Lys Xaa Pro Tyr Arg Xaa Cys Arg`
```
 82 1               5               10
 85 <210> SEQ ID NO: 3
 86 <211> LENGTH: 18
 87 <212> TYPE: PRT
 88 <213> ORGANISM: Artificial
 90 <220> FEATURE:
 91 <223> OTHER INFORMATION: Sequence of T22
 94 <220> FEATURE:
 95 <221> NAME/KEY: MISC_FEATURE
 96 <222> LOCATION: (4)..(4)
 97 <223> OTHER INFORMATION: X is Nal which is L-3-(2-napthyl)alanine
 99 <400> SEQUENCE: 3
101 Arg Arg Trp Cys Tyr Arg Lys Cys Tyr Lys Gly Tyr Cys Tyr Arg Lys
102 1             5                   10                  15
105 Cys Arg
109 <210> SEQ ID NO: 4
110 <211> LENGTH: 21
111 <212> TYPE: DNA
112 <213> ORGANISM: Artificial
114 <220> FEATURE:
115 <223> OTHER INFORMATION: cDNA sequence segments of CXCR4
117 <400> SEQUENCE: 4
118 aataaaatct tcctgcccac c                              21
121 <210> SEQ ID NO: 5
122 <211> LENGTH: 21
123 <212> TYPE: DNA
124 <213> ORGANISM: Artificial
126 <220> FEATURE:
127 <223> OTHER INFORMATION: cDNA sequence segments of CXCR4
129 <400> SEQUENCE: 5
130 aaggaagctg ttggctgaaa a                              21
133 <210> SEQ ID NO: 6
134 <211> LENGTH: 19
135 <212> TYPE: DNA
```

(handwritten annotation) ? "Cys" is at location 4

```
136 <213> ORGANISM: Artificial
138 <220> FEATURE:
139 <223> OTHER INFORMATION: CXCR4 cDNA target sequence
141 <400> SEQUENCE: 6
142 taactacacc gaggaaatg                                    19
145 <210> SEQ ID NO: 7
146 <211> LENGTH: 19
147 <212> TYPE: DNA
148 <213> ORGANISM: Artificial
150 <220> FEATURE:
151 <223> OTHER INFORMATION: CXCR4 cDNA target sequence
153 <400> SEQUENCE: 7
154 tcttcttaac tggcattgt                                    19
157 <210> SEQ ID NO: 8
158 <211> LENGTH: 19
159 <212> TYPE: DNA
160 <213> ORGANISM: Artificial
162 <220> FEATURE:
163 <223> OTHER INFORMATION: CXCR4 cDNA target sequences
165 <400> SEQUENCE: 8
166 tctttgccaa cgtcagtga                                    19
169 <210> SEQ ID NO: 9
170 <211> LENGTH: 19
171 <212> TYPE: DNA
172 <213> ORGANISM: Artificial
174 <220> FEATURE:
175 <223> OTHER INFORMATION: CXCR4 cDNA target sequences
177 <400> SEQUENCE: 9
178 gtttcagcac atcatggtt                                    19
181 <210> SEQ ID NO: 10
182 <211> LENGTH: 19
183 <212> TYPE: DNA
184 <213> ORGANISM: Artificial
186 <220> FEATURE:
187 <223> OTHER INFORMATION: CXCR4 cDNA target sequence
189 <400> SEQUENCE: 10
190 catcatggtt ggccttatc                                    19
193 <210> SEQ ID NO: 11
194 <211> LENGTH: 19
195 <212> TYPE: DNA
196 <213> ORGANISM: Artificial
198 <220> FEATURE:
199 <223> OTHER INFORMATION: CXCR4 cDNA target sequences
201 <400> SEQUENCE: 11
202 tcctgcctgg tattgtcat                                    19
205 <210> SEQ ID NO: 12
206 <211> LENGTH: 19
207 <212> TYPE: DNA
208 <213> ORGANISM: Artificial
```

RAW SEQUENCE LISTING   DATE: 10/06/2005
PATENT APPLICATION: US/10/550,525   TIME: 11:42:43

Input Set : A:\050508-1370.txt
Output Set: N:\CRF4\10062005\J550525.raw

```
210 <220> FEATURE:
211 <223> OTHER INFORMATION: CXCR4 cDNA target sequences
213 <400> SEQUENCE: 12
214 tcctgtcctg ctattgcat                                    19
217 <210> SEQ ID NO: 13
218 <211> LENGTH: 19
219 <212> TYPE: DNA
220 <213> ORGANISM: Artificial
222 <220> FEATURE:
223 <223> OTHER INFORMATION: CXCR4 cDNA target sequences
225 <400> SEQUENCE: 13
226 gcatcgactc cttcatcct                                    19
229 <210> SEQ ID NO: 14
230 <211> LENGTH: 19
231 <212> TYPE: DNA
232 <213> ORGANISM: Artificial
234 <220> FEATURE:
235 <223> OTHER INFORMATION: CXCR4 cDNA target sequences
237 <400> SEQUENCE: 14
238 ggaaagcgag gtggacatt                                    19
241 <210> SEQ ID NO: 15
242 <211> LENGTH: 25
243 <212> TYPE: DNA
244 <213> ORGANISM: Artificial
246 <220> FEATURE:
247 <223> OTHER INFORMATION: siRNA
249 <400> SEQUENCE: 15
250 aauaaaaucu uccugcccac cdtdt                             25
253 <210> SEQ ID NO: 16
254 <211> LENGTH: 25
255 <212> TYPE: DNA
256 <213> ORGANISM: Artificial
258 <220> FEATURE:
259 <223> OTHER INFORMATION: siRNA
261 <400> SEQUENCE: 16
262 aaggaagcug uuggcugaaa adtdt                             25
265 <210> SEQ ID NO: 17
266 <211> LENGTH: 20
267 <212> TYPE: DNA
268 <213> ORGANISM: Artificial
270 <220> FEATURE:
271 <223> OTHER INFORMATION: CXCR4 specifc primers
273 <400> SEQUENCE: 17
274 gaaccctgtt tccgtgaaga                                   20
277 <210> SEQ ID NO: 18
278 <211> LENGTH: 20
279 <212> TYPE: DNA
280 <213> ORGANISM: Artificial
282 <220> FEATURE:
```

RAW SEQUENCE LISTING   DATE: 10/06/2005
PATENT APPLICATION: US/10/550,525   TIME: 11:42:43

            Input Set : A:\050508-1370.txt
            Output Set: N:\CRF4\10062005\J550525.raw

283 <223> OTHER INFORMATION: CXCR4-specific primers
285 <400> SEQUENCE: 18
286 cttgtccgtc atgcttctca   20
289 <210> SEQ ID NO: 19
290 <211> LENGTH: 20
291 <212> TYPE: DNA
292 <213> ORGANISM: Artificial
294 <220> FEATURE:
295 <223> OTHER INFORMATION: primer
297 <400> SEQUENCE: 19
298 gacaggatgc agaaggagat   20
301 <210> SEQ ID NO: 20
302 <211> LENGTH: 20
303 <212> TYPE: DNA
304 <213> ORGANISM: Artificial
306 <220> FEATURE:
307 <223> OTHER INFORMATION: Primer
309 <400> SEQUENCE: 20
310 tgcttgctga tccacatctg   20

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 10/06/2005
PATENT APPLICATION: US/10/550,525   TIME: 11:42:44

Input Set : A:\050508-1370.txt
Output Set: N:\CRF4\10062005\J550525.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 3,8,12
Seq#:2; Xaa Pos 3,5,8,12

Invalid <213> Response:
Use of "Artificial" only as "<213> Organism" response is incomplete,
per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20

Input Set : A:\050508-1370.txt
Output Set: N:\CRF4\10062005\J550525.raw

L:13 M:270 C: Current Application Number differs, Replaced Current Application No
L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:46 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:81 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0

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U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/550,525	Hyunsuk Shim	050508-1370

INTERNATIONAL APPLICATION NO.
PCT/US04/09570

I.A. FILING DATE	PRIORITY DATE
03/26/2004	03/27/2003

Linder, Christopher B
Thomas Kayden Horstemeyer & Risley
100 Galleria Parkway, N.W., Suite 1750
Atlanta, GA 30339-5948

CONFIRMATION NO. 8344
371 FORMALITIES LETTER

OC000000018753207

Date Mailed: 05/11/2006

NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495).

- Indication of Small Entity Status
- Copy of the International Application filed on 09/22/2005
- Copy of the International Search Report filed on 09/22/2005
- Preliminary Amendments filed on 09/22/2005
- Information Disclosure Statements filed on 09/22/2005
- Biochemical Sequence Diskette filed on 09/22/2005
- Biochemical Sequence Listing filed on 09/22/2005
- U.S. Basic National Fees filed on 09/22/2005
- Priority Documents filed on 09/22/2005
- Specification filed on 09/22/2005
- Claims filed on 09/22/2005
- Abstracts filed on 09/22/2005
- Drawings filed on 09/22/2005

The applicant needs to satisfy supplemental fees problems indicated below.

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Additional claim fees of **$25** as a small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date.

SUMMARY OF FEES DUE:

Total additional fees required for this application is $25 for a Small Entity:

- The paper or compact disc copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 CFR 1.821(e). Applicant must provide a substitute paper or compact disc copy of the "Sequence Listing", **as well as an amendment specifically directing its entry into the application** OR a substitute computer readable form (CRF) copy of the "Sequence Listing". These two items must be the same. Applicant must also provide a statement that the content of the sequence listing information recorded in computer readable form is identical to the written (on paper or compact disc) sequence listing and, where applicable, includes no new matter, as required by 37 CFR 1.821(e), 1.821(f), 1.821(g), 1.825(b), or 1.825(d). If the effective filing date is on or after September 8, 2000, see the final rulemaking notice published in the Federal Register at 65 FR 54604 (September 8, 2000) and 1238 OG 145 (September 19, 2000).

- Total additional claim fee(s) for this application is $ 25

  - $25 for 4 total claims over 20.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

For questions regarding compliance to 37 CFR 1.821-1.825 requirements, please contact:

- **For Rules Interpretation, call (571) 272-0951**
- **For Patentin Software Program Help, call Patent EBC at 1-866-217-9197 or directly at 703-305-3028 / 703-308-6845 between the hours of 6 a.m. and 12 midnight, Monday through Friday, EST.**
- **Send e-mail correspondence for Patentin Software Program Help @ ebc@uspto.gov**

ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

A copy of this notice MUST be returned with the response.

PAULETTE R KIDWELL

Telephone: (703) 308-9140 EXT 216

PART 1 - ATTORNEY/APPLICANT COPY

U.S. APPLICATION NUMBER NO.	INTERNATIONAL APPLICATION NO.	ATTY. DOCKET NO.
10/550,525	PCT/US04/09570	050508-1370

FORM PCT/DO/EO/905 (371 Formalities Notice)

Serial No.: **10/550,525**   Filing Date: 9/22/05.
Patent No.:   Issue Date:
Applicant: Shim, et al.
Title: CXCR4 Antagonists and Methods of Their Use
Docket No.: 050508-1370   C/M Date: 12/11/06
EM No.: EV861590400US   Due Date: 12/20/06

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☐ Credit Card Paym't Form
☐ Fee Transmittal Page

☐ RCE Application Transmittal Pg.
☐ Missing Requirements Response
☒ Copy of Defective Response Notice
☒ Resp. to Notice of Defective
☐ Copy - Not. Incomplete Appl. Papers
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☐ Preliminary Amendment
☐ Small Entity Status Claimed
☐ IDS/Form 1449
☐ Cited References Attached ( )
☐ Assignment/Assign't Cover Sheet
☐ Terminal Disclaimer
☐ Amendment Transmittal Page
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   ☐ Non-Final ☐ Final
   ☐ After Not. Allow ☐ Unentered
☐ Response to Advisory Action
☐ Petition for EOT to:

☐ Request to Rescind Non-Pub.
☐ Petition to Make Special
☐ Status Inquiry
☐ Notice of Appeal
☐ Appeal Brief (in Triplicate)
☐ Request for Refund
☐ Request for Correction F/R
☐ Notice of Continuation Applic.
☐ Issue Fee Trx. ☐ In Dupl.
   Sheets of Drawings
   ☐ Formal ☐ Informal
☐ Letter/Trx. To Draftsman
   ☐ Prior to NOA ☐ W/I NOA
☐ Request for Cert. Of Correct.
☐ Certificate of Correction x 2
☐ Maintenance Fee Transmittal
   ☐ 3.5 ☐ 7.5 ☐ 11.5
   ☐ in duplicate

☒ Other: Statement Re Sequence Listing; Sequence Listing w/Diskette

Person Mailing: SAR   Responsible Atty: CBL

IAP15 Rec'd PCT/PTO 11 DEC 2006

THOMAS KAYDEN HORSTEMEYER & RISLEY, LLP
DEC 1 8 2006

Serial No.: **10/550,525**   Filing Date: 9/22/05
Patent No.:   Issue Date:
Applicant: Shim, et al.
Title: CXCR4 Antagonists and Methods of Their Use
Docket No.: 050508-1370   C/M Date: *1 21 11 06*
EM No.: EV861590400US   Due Date: 12/20/06

**PATENT AND TRADEMARK OFFICE
STAMP HEREON** ACKNOWLEDGES
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☐ RCE Application Transmittal Pg.   ☐ Request to Rescind Non-Pub.
☐ Missing Requirements Response   ☐ Petition to Make Special
☒ Copy of Defective Response Notice   ☐ Status Inquiry
☒ Resp. to Notice of Defective   ☐ Notice of Appeal
☐ Copy - Not. Incomplete Appl. Papers   ☐ Appeal Brief (in Triplicate)
☐ Declaration & Power of Attorney   ☐ Request for Refund
☐ Preliminary Amendment   ☐ Request for Correction F/R
☐ Small Entity Status Claimed   ☐ Notice of Continuation Applic.
☐ IDS/Form 1449   ☐ Issue Fee Trx. ☐ In Dupl.
☐ Cited References Attached (   )   ☐   Sheets of Drawings
☐ Assignment/Assign't Cover Sheet   ☐ Formal ☐ Informal
☐ Terminal Disclaimer   ☐ Letter/Trx. To Draftsman
☐ Amendment Transmittal Page   ☐ Prior to NOA ☐ W/I NOA
☐ Amendment: ☐ Restriction   ☐ Request for Cert. Of Correct.
    ☐ Non-Final   ☐ Final   ☐ Certificate of Correction x 2
    ☐ After Not. Allow ☐ Unentered   ☐ Maintenance Fee Transmittal
☐ Response to Advisory Action   ☐ 3.5 ☐ 7.5 ☐ 11.5
☐ Petition for EOT to: ☐ in duplicate

☒ Other: Statement Re Sequence Listing; Sequence Listing w/Diskette

Person Mailing: SAR   Responsible Atty: CBL

DOCKETED

DOCKETED

EV861590400US

In Re Application Of: Shim, et al.

Group No.: TBD

Serial No.: 10/550,525
International Application No.: PCT/US04/09570

Docket No. 050508-1370

International Filing Date: March 26, 2004

For: **CXCR4 Antagonists and Methods of Their Use**

RESPONSE TO NOTIFICATION OF DEFECTIVE RESPONSE
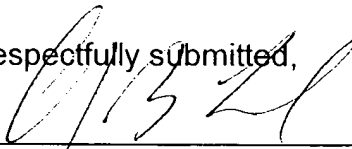
Mail Stop PCT (DO/EO/US)
Commissioner for Patents
Office of PCT Legal Administration
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

In response to the Notification of Defective Response mailed on November 20, 2006, Applicants herewith submit the Sequence Listing; Sequence Listing on diskette; Statement Regarding the Sequence Listing.

In addition, it is not believed that any further fees are required. However, if the Office believes that an additional $25.00 fee may be required, the Office is authorized to charge any deficiency to Deposit Account No. 20-0778.

Respectfully submitted,

Christopher B. Linder, Reg. No. 47,751

THOMAS, KAYDEN,
 HORSTEMEYER & RISLEY, L.L.P.
Suite 1750
100 Galleria Parkway N.W.
Atlanta, Georgia 30339
(770) 933-9500

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_12/11/06_ .

Sara Rogers
Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of: Shim, et al.

Group No.: TBD

Serial No.: 10/550,525
International Application No.: PCT/US04/09570

Docket No. 050508-1370

International Filing Date: March 26, 2004

For: **CXCR4 Antagonists and Methods of Their Use**

STATEMENT REGARDING SEQUENCE LISTING COMPLYING WITH STANDARD

Commissioner for Patents
Mail Stop Sequence Listing
PO Box 1450
Alexandria, VA 22313-1450

Sir:

The information recorded in computer readable form on the attached disk is identical to the written (on paper) sequence listing of the above-referenced application.

Respectfully submitted,

Christopher B. Linder; Reg. No. 47,751
Attorney for Applicant

**THOMAS, KAYDEN, HORSTEMEYER
& RISLEY, L.L.P.**
Suite 1750
100 Galleria Parkway, N.W.
Atlanta, GA 30339-5948
Telephone: (770) 933-9500
Facsimile: (770) 951-0933

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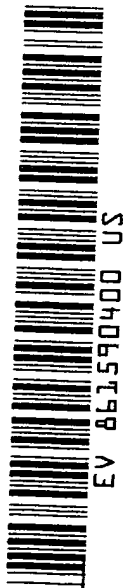
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EP-13F February 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of: Shim, et al.

Group No.: TBD

Serial No.: 10/550,525
International Application No.: PCT/US04/09570

Docket No. 050508-1370

International Filing Date: March 26, 2004

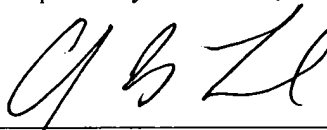For: **CXCR4 Antagonists and Methods of Their Use**

STATEMENT REGARDING SEQUENCE LISTING COMPLYING WITH STANDARD

Commissioner for Patents
Mail Stop Sequence Listing
PO Box 1450
Alexandria, VA 22313-1450

Sir:

The information recorded in computer readable form on the attached disk is identical to the written (on paper) sequence listing of the above-referenced application.

Respectfully submitted,

Christopher B. Linder; Reg. No. 47,751
Attorney for Applicant

**THOMAS, KAYDEN, HORSTEMEYER
& RISLEY, L.L.P.**
Suite 1500
600 Galleria Parkway, N.W.
Atlanta, GA 30339-5948
Telephone: (770) 933-9500
Facsimile: (770) 951-0933

SEQUENCE LISTING

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<213>  Artificial Sequence

<220>
<223>  chemically synthesized CXCR4 primer sequence

<400>  17
aaggaagcgg gcgaaaadtd t                                              21


<210>  18
<211>  20
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  chemicall synthesized CXCR4 primer sequence

<400>  18
cttgtccgtc atgcttctca                                               20


<210>  19
<211>  20
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  chemically synthesized primer sequence

<400>  19
gacaggatgc agaaggagat                                               20


<210>  20
<211>  20
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  chemically synthesized primer sequence

<400>  20
```

tgcttgctga tccacatctg

In Re Application Of: Shim, et al.

Group No.: TBD

Serial No.: 10/550,525
International Application No.: PCT/US04/09570

Docket No. 050508-1370

International Filing Date: March 26, 2004

For: **CXCR4 Antagonists and Methods of Their Use**

Amendment Requesting Entry of Substitute Sequence Listing

Mail Stop PCT (DO/EO/US)
Commissioner for Patents
Office of PCT Legal Administration
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

On September 22, 2005 Applicants filed papers to enter the national stage of PCT/US2004/009570, which were accompanied by a sequence listing and a copy of the sequence listing in computer readable form (CRF). Error Reports were generated from the Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) on October 6, 2005 and October 12, 2006 indicating that the Sequence Listing provided by Applicants was found to be defective by the STIC. Although a copy of the error report from the STIC with a marked up copy of the sequence listing was not included with the Notice of Missing Requirements mailed on May 11, 2006 or the Notice of Defective Response mailed on November 20, 2006, Applicants obtained a copy from PAIR.

Specifically, the reports indicate that the Sequence Listing was found to be defective by the STIC for an allegedly improper entry in item <223>. Applicants indicated in item <213> that each of the 20 sequences was "Artificial", but the "source" description provided by Applicants in item <223> was found to be insufficient. Applicants submit that this was an unintentional error and hereby

submits a Substitute Sequence listing indicating that all of artificial sequences 1-20 are "chemically synthesized." Applicants also hereby request an amendment directing entry of the Substitute Sequence Listing into the application.

Applicants submit that no new matter has been added by way of the amendment, since all 20 sequences were included in the application as originally filed, and the description of the sequences in the Specification clearly indicates that the sequences are artificial and were made by the Applicants. One of skill in the art would understand that the sequences were chemically synthesized sequences. Applicants submit that the use of the incorrect terminology in item <223> was an obvious and unintentional error.

Applicants have also amended the sequence listing for SEQ ID No 3 to remove the unnecessary miscellaneous feature that was noted in the STIC error report. Applicants have also made minor corrections of obvious errors to sequences 15 and 16 so that the sequences conform with SEQ ID Nos 15 and 16 in the specification (page 30 and claims 38, 39, and 41 on pages 78-79 of the Specification).

It is not believed that any further fees are required. However, if the Office believes that any additional fees may be required, the Office is authorized to charge any deficiency to Deposit Account No. 20-0778.

Respectfully submitted,

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